BIOLOGICAL EVALUATION OF FOREST INSECT CONDITIONS ON THE SAWTOOTH NATIONAL FOREST DURING 1968

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Forest Insect Conditions on the Sawtooth National Forest 1968

Information for this report has been compiled from aerial and ground detection surveys and on-the-ground biological evaluations of specific infestation centers. Verbal and written reports from your staff materially aided in pinpointing potentially serious insect threats to timber resources.

The mountain pine beetle continued to cause widespread mortality in lodgepole pine on the Cassia Division, and on the Ketchum, and Fairfield Ranger Districts. An upsurge in Douglas-fir beetle activity was detected in the South Fork of the Boise River drainage, Big Smoky Creek, and its tributaries. Ips and western pine beetle activity in ponderosa pine on the Shake Creek Ranger District has decreased to the point where infestation centers are considered endemic. A resurgence of spruce budworm activity in the old epidemic center around Big Smoky was detected. All defoliation mapped in during aerial surveys was classed as light. Open-grown stands of lodgepole reproduction in Sawtooth Valley and south of Galena Summit are still being damaged by a terminal weevil of the genus Pissodes.

Following is a discussion of individual pest problems encountered on the Forest during the 1968 field season.

MOUNTAIN PINE BEETLE - Dendroctonus ponderosae Hopk.

Due to unseasonable rains, detection flights over the Forest were delayed during mid-August. When aerial reconnaissance was resumed in October, fading had progressed to a point where differentiation between last year's and this year's faders was extremely difficult. In view of this, planned detection flights on the southern part of the Forest were cancelled. Due to the interruptions in our flying schedule, we cannot furnish you with information as accurate as we feel necessary to constitute a good survey. On the northern half of the Forest, flights were conducted prior to the August storms, and we feel these surveys were relatively accurate. One exception would be in the Warm Springs drainage on the Ketchum District where flights were not made until early October.

Biological evaluations of the mountain pine beetle activity in the Williams-Rosetta area, Fairfield Ranger District, indicate continued epidemic trends for 1969. It is difficult to accurately determine the effect late August rains had on late flying adult beetles and the physiology of trees in this area. However, we recorded a considerable amount of high pitchout ratios which may possibly be due to increased resin pressure in the trees resulting from availability of midsummer precipitation. The effects of these rains cannot be accurately assessed until completion of the 1969 evaluations; however, regardless of the climatological effects, heavy attack densities were observed in some areas which will undoubtedly sustain current epidemic levels.

Evaluations in the Warm Springs drainage and its tributaries, which have undergone chronic infestations of the mountain pine beetle, indicate continued high levels of activity. New attacks this year averaged three trees for every tree killed last year. Broods appear healthy and their numbers were classified as epidemic. From the entomological standpoint. all factors point toward continuing losses for the 1969 field ser

DOUGLAS-FIR BEETLE - Dendroctonus pseudotsugae Hopk.

This destructive beetle caused increased losses on the Fairfield and Shake Creek Districts. Approximately 50 new infestation centers were detected with losses ranging from three to twenty trees per group.

Fairfield District personnel detected renewed beetle activity in the Williams-Rosetta Sale. Infested trees were removed by loggers that were operating in the general area last summer. It is commendable that the District personnel recognized the problem and took expedient action for removal of the newly attacked trees. This type of heads-up detection and direct action goes a long way in keeping beetle activity to a minimum.

Comment should be made on the forthcoming Boardman Creek Sale area. It is our understanding that system road building for timber access will start in 1969. We have discussed the problem of Douglas-fir beetle activity with the timber staff officer and propose the following recommendations:

> Right-of-way slash, long butts, culls, etc., should be windrowed at the toe of the slope during road construction. Burning of slash should be of such intensity as to consume all bark on pieces six inches in diameter and larger.
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> Providing the road is completed next year and logging starts, slash should be tractor piled and burned prior to winter snows of 1969. Cutting on a full-scale basis should commence in 1970. In preselected areas, felled trees should be left in place until July 1, or as late as July 15, to act as traps. This procedure, incidentally, was tried in a Douglas-fir sale area on the Boise National Forest in 1968 with a high degree of success. After it is determined that beetle flights have been completed, hauling of the infested trap trees should be started. Cutting from that time on should follow normal procedures.
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> It is imperative that an effort be made to burn current year slash in this sale prior to winter snows. In some cases a carryover of slash could be tolerated if there was a guarantee that fresh green material would be on the ground early enough the following year to absorb emerging adult populations. Slash consisting of large cull pieces should be concentrated on. These large, thick barked, long butts, sweeps, etc., are prime habitat for beetle development. The bark has to be completely consumed to assure adequate control.

The preceding recommendations have been made in light of continued high-level Douglas-fir beetle activity throughout the Forest for the past two years.

Elsewhere on the Forest, Douglas-fir beetle activity continues a strong upward trend and, as you know, it is economically and physically impossible to salvage log all of the infestation centers. Our recommendation for Douglas-fir beetle control is to salvage log whenever and wherever possible in areas of highest economic impact. Until such time as new control techniques can be devised for Douglas-fir beetle control, logging and timely slash disposal are the only practical methods for controlling the beetle.

Ips pini (Say)

In general Ips activity in pole-size, second-growth, stagnated, ponderosa pine stands decreased on the Shake Creek Ranger District. Some activity was noted; however, group sizes were small averaging three to ten trees each. These scattered infestations were primarily confined to the Pine Gulch drainage. There is a distinct possibility that the ebb in Ips activity can partially be attributed to unusually heavy amounts of mid-August precipitation which may have interferred with adult flights. Generally speaking, a decline in epidemic Ips activity was observed throughout southern Idaho Forests in 1968. Prior to this time, large-scale losses were experienced through 1966 and 1967.

Natural influences appear to play a major role in development of Ips populations to epidemic status. It is known that accelerated Ips activity goes hand in hand with periods of low precipitation, low humidity, and high temperatures. Also, man's influence during these periods of time has a direct bearing on whether or not Ips will build up rapidly. Regional cutting and thinning guides specify that thinning in ponderosa pine can commence after July 1. In the last three field seasons we found this recommendation could not be adhered to. As a result, we are recommending to defer thinning until the first of September, with a cutoff date of December 30. If thinning is contemplated on the Forest during 1969, we would recommend the preceding start and stop dates as a refinement of those specified in the Manual; in other areas we have found this to be quite workable. Until the high levels of Ips activity subside, this is the most practical course to follow.

WESTERN PINE BEETLE - Dendroctonus brevicomis (Lec.)

This pest, working in combination with D. ponderosae, killed approximately thirty mature ponderosa pines in Grouse Creek on the Shake Creek District. Even though the infestation developed rapidly, it does not appear to be the start of a full-blown epidemic. In many cases the affected trees are overmature, decadent, and of low vigor, which makes them prime candidates for bark beetle attack. Evaluation of the area did not show numerous new attacks which would indicate a sharp upward trend in the beetle population.

A considerable amount of insect susceptible, overmature pine can be found in Crouse Creek, and it is expected that annual endemic losses will be higher than usual.

SPRUCE BUDWORM - Choristoneura fumiferana Complex

A resurgence in budworm activity was detected in the Big Smoky area; however, defoliation intensities were classified as light. Elsewhere, a small infestation was found on the northwest slope of Cold Springs Ridge, in the Middle Fork of Lime Creek. Budworm populations which dropped off in 1966 and 1967 appeared to be following the general increase in budworm development noted throughout the Region in 1968. For the most part, 1968 budworm activity occurred as an increase in the number of acres affected, with defoliation intensity classed as light.

Following is a table depicting the last three years' fall egg mass samples of four areas with predictions for 1969 defoliation estimates:

Sampling Locations	Average No. Egg Masses per 1,000 Sq. In. of Foliage			Expected Defoliation in 1969	
	1966	1967	1968	%	Trend
Couch Summit	8.7	1.7	2.9	15%	Static
Boardman Cr.	3.2	2.1	1.8	15%	Static
No. Fleck Summit	11.4	5.6	5.4	25-50%	Increasing
Syndey Butte	4.8	4.4	2.3	15%	Static

As stated in the 1967 conditions report, when decreasing trends were indicated, the possibility of populations building back to epidemic levels has become a reality. Historically, budworm populations on the Sawtooth have shown rapid fluctuations. These have primarily been due to natural factors, such as increases and decreases in predator-parasite relations, and on three occasions high intensity hailstorms have caused mortality to thousands of adult moths during the flight period.

Following is a table depicting the past 9-year history of budworm defoliation on the Forest:

DEFOLIATION INTENSITY (by year and acres)

Year	Light	Moderate	Heavy	Total
1960	120,000	--	1,000	121,000
1961	5,000	3,000	5,000	13,000
1962	4,000	10,000	27,000	41,000
1963	14,720	25,440	20,000	60,160
1964	32,000	21,000	1,000	54,000
1965	--	9,000	--	9,000
1966	78,500	15,400	16,100	110,000
1967	18,100	--	--	18,100
1968	46,720	--	--	46,720

At the present time the damage is neither intensive nor expansive enough to warrant control. We have not received information which would indicate that Zectran will become operational for areas affected by severe budworm defoliation, in the event control is needed sometime in the future. It is our understanding that another Zectran test will be made in Region 1 during 1969. This test will be of similar nature to the one conducted on the Sawtooth in 1967. If this test is successful, we will be in a much better position to deal with this chronic pest if and when control action is needed.

LODGEPOLE PINE TERMINAL WEEVIL - Pissodes sp.

Terminal weevil damage, which was detected in 1967, continued at approximately the same level of activity through the past field season in Sawtooth Valley and south of Galena Summit. Open-grown lodgepole reproduction stands, particularly in fringe areas, seem to be the hardest hit. Damage occurs when the terminal of a tree is killed and the top whorl sends up laterals which try to assume dominance. This results in a crooked, multiple-leader, tree. An attempt was made to gather as much information as possible this year; however, work schedule involvements were not conducive to following the insect through its complete life cycle. Some new information was gained, and we are much further ahead in understanding the biology of this insect than we were a year ago.

To date heaviest damage has been found between Alturas and Pettit Lakes. However, as detection surveys progress, we are finding that the weevil is much more widespread in its distribution than originally thought. At present, positive determination of the insect beyond the genus Pissodes has not been made.

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